SARGOCENTRON MACROSQUAMIS A NEW SQUIRRELFISH FROM THE AMIRANTES ISLANDS AND THE RED SEA (HOLOCENTRIDAE, PISCES)

by

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ABSTRACT. – A new species of Holocentridae, *Sargocentron macrosquamis*, is described. Description is based on a specimen from the Amirantes Islands and a specimen from the Red Sea. Large scales on the posterior portion of the operculum distinguish this species from other holocentrids.

RÉSUMÉ. – Une nouvelle espèce d'Holocentridae, *Sargocentron macrosquamis*, est décrite. Deux specimen, l'un des Iles Amirantes et l'autre de la Mer Rouge ont servi de base à ce travail. De larges écailles sur la partie postérieure de l'opercule caractérisent cette nouvelle espèce d'holocentridae.

Key words : *Sargocentron macrosquamis*, Holocentridae, Amirantes Island, Red Sea, taxonomy.

While examining specimens of the family Holocentridae at the Field Museum of Natural History in Chicago, the author noted a specimen of squirrelfish from the Amirantes Islands which had a peculiar appearance. This fish had, unlike any other holocentrid, large scales covering the entire posterior portion of operculum. Further investigation revealed another similar specimen from the Red Sea which was deposited in the Tel-Aviv University fish collection.

Holocentrid fish inhabit tropical and subtropical seas around the world. The family consists of 57 or 58 species (Zehren, 1979) and is divided into two subfamilies, Myripristinae, lacking preopercular spine in adults and Holocentrinae, which have this spine (Shimizu and Yamakawa, 1979). Three genera are recognized in Holocentrinae : *Holocentrus, Flammeo* and *Sargocentron* (The later was known until recently as *Adioryx* but Matsuura and Shimizu (1982) showed that *Adioryx* is a junior synonym of *Sargocentron*). *Sargocentron* is the largest genera of this family and is distinguished from *Holocentrus* by the morphological structure of the auditory bulla and swimbladder (Nelson, 1955) and from *Flammeo* by the location of the last dorsal spine (Greenfield, 1978).

Most taxonomic publications on the subfamily Holocentrinae are relatively old and suffer from nomenclature confusion. These works are summarized in the excellent study carried out by Shimizu and Yamakawa (1979).

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Material and Methods. Measurements and counts were made in the same manner as Hubbs and Lagler (1947), using Woods and Sonoda's (1973) and Shimizu and Yamakawa's (1979).edifications.

The tip of the nasal bone is taken to be the most anterior point. The head is measured to the tip of the largest opercular spine. In the caudal fin, the upper procurrent caudal spiniforms are given first in Roman numerals, followed by Arabic number of segmented rays and succeeded by Roman numerals for the lower procurrent caudal spiniform. An X-ray photograph provided the number of vertebrae and accurate counts of dorsal, anal and caudal spines and rays.

The following abbreviations are used : FMNH--Field Museum of Natural History, Chicago; TAU–Tel-Aviv University.

Sargocentron macrosquamis **n. sp.**

(Figs. 1, 2)

Holotype : FMNH 86961, 59 mm SL.; collected at 4-7 m depth by J. Böhlke and D. Dockins at the Eastern end of D'Arros Island, Amirantes Islands. 5 March 1964.
Paratype : TAU 7830, 46 mm SL.; collected by rotenone at 10 m depth by M. Goren, at Marsa Bareka (10 km south of Sharm-el-Sheik) Red Sea. 15 October 1979.
Diagnosis : Scales above lateral line 2 1/2. 3 spines on nasal bone. Very large spinules at anterior portion of suborbital bone. Upper part of suborbital bone with spinules. Posterior portion of operculum completely covered with very large scales. Scales coarsely ctenoid with long ctenii.
Description : D: XI,13; P: 15-14, A: IV,9; V: 1,7; C: V,19-20,IV. Lateral line scales 39-43. Scales above L.L. 2 1/2 . Scales below L.L.7 1/2 -8(last row mid-ventral). Gill rakers 5-1-9. Head 2.6-2.7, Body depth 2.3-2.5 in S.L. Orbit 2.6, Upper jaw 2.8-2.9, longest dorsal spine (4th) 1.8, longest anal spine (3rd) 1.4-1.5 in head length. Snout 2.0-2.1, interorbital 2.0-2.1 in orbit diameter. Vertebrae 27.

Body compressed; head profile straight; snout pointed. Base of dorsal spinules slightly curved. Soft dorsal fin base slightly raised.

Anterior part of nasal bone rounded, forming shelf over tip of upper jaw. Posterior portion of nasal bone with three spines, two at the inner edge at level of eye center, the third one slightly lower, located in the middle between the nostril and the inner edge of the nasal bone. Nostril without spinules.

Upper and lower margins of first suborbital bone strongly serrated. Anterior preorbital with very large recurved spine. Eye large. The ventro-posterior edge of the upper portion of maxilla with 3 spines. Scale on cheek not arranged in clear rows. Preoperculum margin strongly serrated. Origin of preopercular spine covered with a scale in holotype and partially covered in paratype. The entire posterior portion of operculum covered with 5 very large and two smaller scales. Two subequal opercular spines. Opercular edge heavily serrated. Interorbital concave. Frontal bone forms shelf over orbit, with dorso-posterior portion of shelf having 7-10 spinules.

Mouth with thick lips, upper lip slightly protruding over the lower lip. Viliform teeth. Lower jaw slightly shorter when mouth closed. Maxilla extending to

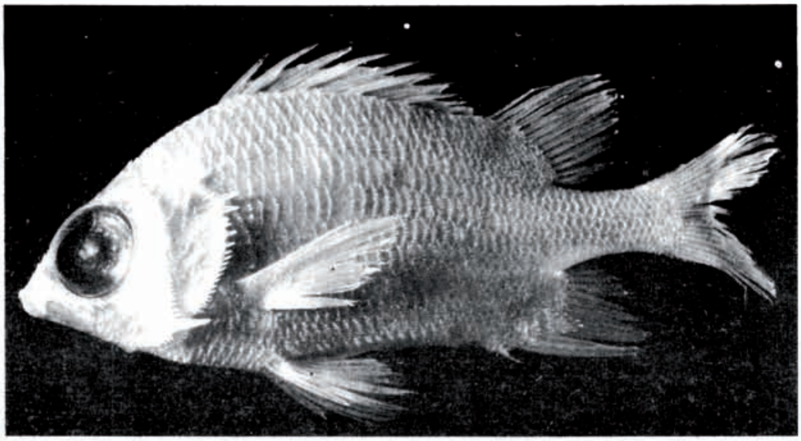

Fig. 1. – Holotype of *Sargocentron macrosquamis* nov. sp. (FMNH 86961 - TL 79.0 mm).

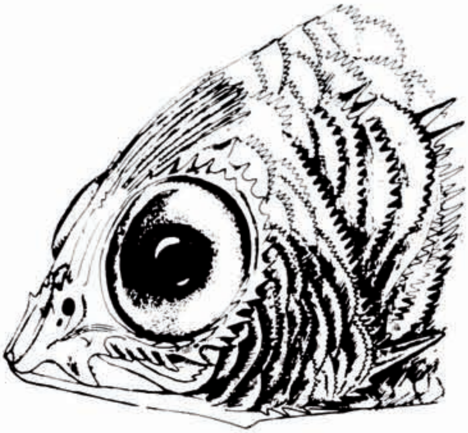

Fig. 2. – Head of *Sargocentron macrosquamis*.

first third of eye.

Scales coarsely ctenoid; from 6 ctenii on the posterior to 18 on the anterior of the flank up to 30 on the largest opercular scale of holotype. The bases of all fins except spinous portion of the dorsal fin covered with scaly sheath. 5 scales between pelvic fins.

Origin of dorsal fin over third L.L. scale. The fourth dorsal spine the longest, the fifth and sixth subequal. The remaining spines decrease in size, the last spine very small. Second dorsal ray the longest. The origin of anal fin below origin of soft dorsal ray portion. Third anal spine long. (Morphological proportions are given in Table I.).

Color (in alcohol): light brown to beige, the fins light yellow to off-white.

Ethymology. Named *macrosquamis* from the Greek in reference to the large scales on the posterior portion of the operculum.

Table I. – Morphometric proportions of *Sargocentron macrosquamis* expressed as a percentage of standard length.

	Holotype FMNH 86961	Paratype TAU 7830
Total length (mm)	79.0	59.0
Standard length (mm)	59.0	46.5
Greatest body depth	43.2	39.8
Head length	37.3	38.7
Snout length	6.8	7.5
Orbit diameter	14.4	15.0
Interorbital width	6.8	7.5
Upper jaw length	12.7	14.0
Least depth caudal peduncle	10.2	8.6
Caudal peduncle length	16.1	15.1
Predorsal length	44.1	44.1
Preanal length	73.7	72.0
Length of preopercular spine	6.8	6.5
Length of longest dorsal spine (4th)	21.2	21.5
Length of longest anal spine (3rd)	26.3	25.8
Length of longest dorsal ray (2nd)	20.3	21.5
Length of longest anal ray (2nd)	27.1	21.5
Length of middle caudal rays	11.9	12.9

Remarks

The species most closely related to *Sargocentron macrosquamis* seems to be *S. spinosissimus* (Temminck and Schlegel, 1843), known only from Japan, which also has spinules on the nasal bone, serrated opercular margin, and lacks spinules on the nostril. However only *S. macrosquamis* has the distinguishing characteristics of large scales on the posterior part of the operculum and higher number of L.L. scales, which clearly separate these two species.

Sargocentron macrosquamis appears to be a rather rare species. An examination of numerous specimens in FMNH, TAU, as well as Hebrew University Fish Collection and Zoological Museum, Amsterdam revealed only 2 specimens of this species.

It seems that both holotype and paratype of *S. macrosquamis* are young fish, not fully grown. However, the lack of additional material makes it impossible to confirm this assumption.

It is unlikely that these specimens are the young stage of another species. Mc Kenney (1959), Jones and Kumaran (1962), Belyanina (1974) and Golani (1981) showed that young stage holocentrids reach their basic adult form at the length of approximately 40 mm.

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